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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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COUNTRY USSR

REPORT NO. [redacted]

SUBJECT Assessment of Soviet Meteorological Papers

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1. [redacted] translations of two Soviet meteorological papers and was requested to determine their relative value and pertinence to the subjects covered by providing answers to five questions. The questions were:

a. How does the level of knowledge and research, as indicated by this article, compare with that of the US and other countries with which you are familiar?

b. Are there any differing or new theories, methodology, or other evidences of originality? What are they? Indicate their importance and applicability.

c. Is there any evidence of acceptance, adoption, or copying of techniques or ideas from the US or other foreign countries? What are similarities?

d. Does the article indicate that the Soviet scientists have a high, low or average competency in a specific sub-field (turbulence, diffusion, evaporation, heat transfer, instrumentation, etc.) of meteorology? In what way?

e. Would you conclude from this article, or from any other information available to you, that Soviet meteorologists have the capability to render support to chemical warfare and biological warfare? Please comment as fully as possible.

Answers to the above questions are listed in the same order in succeeding paragraphs covering each of the papers considered.

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2. "Causes of the Noncoalescence of Water Droplets in Collision" by P S Prokhorov and V N Yaskin, Laboratory of Surface Forces, Institute of Physical Chemistry, Academy of Science, USSR, April 1947.

a. The level of knowledge and research, as indicated by the above article, compares favorably with the level in the US, the British Commonwealth, and The Netherlands. This article investigates empirically the variation in collisional coalescence efficiency of equisized drops of 0.4 mm diameter as a function of ambient humidity. References made in the article to other Soviet publications show the authors to be aware of a possible reason for the noncoalescence of statically juxtaposed water drops which in the allied countries was not discussed until 1950. (R R Vierhout of The Netherlands)

Prokhorov and Yaskin did not present the theory for the effects they observed. Vierhout presented the theory but mentions that no experimental verification of the theory was then available. On the basis of the Prokhorov-Yaskin article only, it is difficult to tell whether these Soviet cloud physicists in 1947 had prior knowledge of the theory.

b. The investigation covered in this article is apparently based on original research. No new theories or unusual methodology is indicated. The experimental technique is interesting and might find some application here in the US.

c. No evidence exists to indicate copying or adoption of US or other foreign techniques and ideas.

d. The type of investigation reported in this article is such that the Soviet level of competency in cloud physics or allied fields cannot be ascertained. The article discusses a specific laboratory investigation in very qualitative terms. Whether lack of knowledge is responsible for the qualitative desertation is difficult to assess. [redacted]: no.

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e. [redacted] from this article that Soviet meteorologists do have the capability to render support to chemical warfare and biological warfare. However, [redacted] the degree of their capability can be ascertained from the subject matter contained in these articles [see para 3], since these articles treat two specific problems.

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3. "A Theory of the Movement of Droplets in an Anabatic Current of Air Subsaturated or Supersaturated with Vapor and Its Possible Meteorological Applications" by B V Deriagin and O M Tooles (1948).

a. The level of knowledge indicated by this article is somewhat below the level of similar knowledge in the US and other allied countries.

b. No new theories or methodology are contained in this report.

c. No evidence of acceptance, adoption or copying of techniques or ideas is revealed.

d. Based solely on the contents of the subject report, it would appear that Soviet research on the subject of cloud mechanics is lagging somewhat behind similar US and allied research. The cloud movement theory proposed in this article ignores many factors which have been considered by US and allied research. Also, the US

and allies have conducted extensive flight programs to measure cloud parameters and investigate cloud mechanisms. No mention of similar verification programs is contained in the Soviet article.

25X1X e. [redacted] conclude from this article that Soviet meteorologists do have the capability to render support to chemical warfare and biological warfare. However, [redacted] the degree of 25X1X their capability can be ascertained from the subject matter contained in these articles [see para 2], since these articles treat two specific problems.

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